

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

Code : RVT (MB) 3/80
Cat. No.: 1342

Title: Released Variety Trial (3)- Dalton

1. Particulars of the project

This crop : Plant
Site : Dalton
Altitude : 1000 m
Soil series : Farningham
Design : Random blocks with 5 replications
Fertilizer : N P K Zn
 kg/ha 108 44 94 4
Water regime: Rainfed

Soil analysis: Date: 16/7/80

pH Clay% OM
 5,0 30% 3%

ppm

<u>P</u>	<u>K</u>	<u>Ca</u>	<u>Mg</u>	<u>Zn</u>	<u>Al</u>
56	136	308	111	4	27

Age: 23,9 months

Dates: 30/10/80 - 27/10/82

2. Objectives

To evaluate newly released varieties in the midlands on moderate soils where the cutting cycle is about 24 months.

3. Varieties

Standard: NCo 376, NCo 293

New : N7, N12, N14, N16, 69E991

Rainfall (mm)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1980/81	44	220	86	104	60	58	12	59	26	3	66	53
1981/82	42	153	44	82	65	127	42	14	8	6	6	65
L.T.M.	70	110	99	144	110	105	47	32	5	11	32	67

Total rain= 1445 mm (1664 mm expected)

Grass minimum temperature (°C)

1980/81	4,0	7,7	8,5	12,0	8,5	4,8	-0,7	0,1	-5,5	-6,0	-4,5	-3,7
1981/82	1,0	1,0	9,0	9,8	9,6	7,3	-2,7	0,7	-4,6	-2,5	-2,8	2,0

4. Results

Yield component		Variety		N16		NCo 293		N12		NCo 376		69E 991		N14		N7		Mean	LSD P=0,05	CV %
		N16	NCo 293	N12	NCo 376	69E 991	N14	N7												
		<u>Sucrose content (ERS % cane)</u>																		
9/7/82	20,3 months	12,0	12,00	12,4	11,8	12,6	11,8	12,7	12,2	0,9	5,0									
12/8/82	21,4 months	13,6	13,2	14,3	12,9	14,3	13,3	13,8	13,6	0,6	3,0									
15/9/82	22,5 months	13,5	13,3	13,4	12,9	14,2	13,3	13,8	13,5	1,4	8,0									
Harvest	23,9 months	13,4	13,8	13,7	12,1	12,4	11,8	12,6	12,8	1,7	10,0									
		<u>Juice purity at harvest (%)</u>																		
		90,9	92,2	92,0	91,0	92,9	90,7	90,8	91,5	3,1	2,0									
		<u>Stalk data at harvest</u>																		
Height - untopped (m)		1,57	1,62	1,54	1,67	1,82	1,61	1,41	1,57	0,09	4,0									
	topped (m)	1,45	1,48	1,34	1,30	1,73	1,48	1,18	1,42	0,05	5,0									
Population ('000/ha)		176	135	177	167	136	126	198	159	14,2	6,0									
Estimated length of short internodes (cm)		8	4	12	5	9	10	7	8											
% stalks with side shoots		0,2	1,6	0	1,6	2,2	0,2	0,4	0,9											
		<u>Yield of cane and sucrose</u>																		
Cane yield (t/ha)		111	106	101	100	94	98	87	100	11,7	8,0									
Sucrose yield (t/ha)		14,9	14,7	13,9	12,1	11,7	11,5	11,0	12,8	2,3	13,0									
Yield as a % of NCo 376	Cane	111	106	101	100	94	98	87	100	11,7										
	Sucrose	123	121	115	100	97	95	91	106	19										
Yield per month (t/ha)	Cane	4,6	4,4	4,2	4,2	3,9	4,1	3,6	4,2											
	Sucrose	0,62	0,62	0,58	0,51	0,49	0,48	0,46	0,54											
Yield per 100 mm rain	Cane	7,7	7,3	7,0	6,9	6,5	6,8	6,0	6,9											
	Sucrose	1,03	1,02	0,96	0,84	0,81	0,80	0,76	0,88											
		<u>3rd leaf nutrient content at 2,7 months</u>																		
N% DM		2,71	2,70	2,59	2,95	2,30	2,67	2,83	2,68											
P% DM		0,28	0,32	0,30	0,33	0,28	0,28	0,33	0,30											
K% DM		1,65	1,58	1,61	1,44	1,89	1,55	1,53	1,61											
		<u>3rd leaf nutrient content at 4,6 months</u>																		
N% DM		2,27	2,15	2,29	2,41	2,02	2,15	2,53	2,26											
P% DM		0,24	0,22	0,24	0,26	0,23	0,22	0,29	0,24											
K% DM		1,33	1,10	1,26	1,13	1,33	1,05	1,16	1,19											

Comments

The crop was planted into moist soil on a cool day. Germination was good but the canopy formed slowly. After three months the extent to which the canopy had closed was estimated as follows:

N14	69E991	N16	NCo 376	NCo 293	N12	N7
50	42	38	23	23	11	8 (%)

Rainfall during February, March and April 1981 was less than half the long term mean and the abrupt cessation of growth in March was indicative of a depleted soil water reserve. Good rains in November 1981 allowed growth to resume. The summer of 1981/82 was also dry and growth almost stopped in March but resumed again following good rains in that month. Severe frosts in July 1981 caused considerable damage to older cane in the area but not in this trial.

Stalk elongation

Elongation in N7 and N12 was distinctly lower than that of the other varieties during the period of most rapid growth in the first season. N16, NCo 293 and 69E991 were more vigorous than NCo 376 during this period and remained taller throughout. All varieties except N7 displayed more vigour than NCo 376 during the period of rapid growth in the second season. In this way the growth pattern of N12 was characteristic of this variety which tends to lack vigour initially but compensates adequately later on. N14 has showed a similar tendency.

Sucrose content

The decline in sucrose content during spring prior to harvest was particularly marked in 69E991 and N14 and particularly mild in N12 and NCo 293. 69E991 may have out yielded NCo 293 had the trial been cut in September. N16 would probably have given the highest sucrose yield whether harvesting was done in September or October.

Cane and sucrose yields

N16 produced significantly more cane per hectare than 69E991, N14 or N7. The yields of NCo 293, N12 NCo 376 69E991 and N14 were not significantly different. N16 and NCo 293 produced significantly more sucrose per hectare than all varieties except N12. The success of NCo 293 and N12 in these abnormally dry conditions is encouraging. The superiority of N16 in these conditions confirms earlier observations and results on its performance in drought.

GIB/IS

28 June 1983

STALK HEIGHT OF N6376 (cm)

